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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,240	10/22/2003	Dustin A. Cochran	STL 3318	8375

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EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,240

Applicant(s)

COCHRAN, DUSTIN A.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/13/04, 10/6/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10 and 16-20, drawn to a system for radially positioning a workpiece for electrochemical machining, classified in class 204, subclass 224M.
 - II. Claims 11-15, drawn to a method for radially positioning a workpiece for electrochemical machining, classified in class 205, subclass 649.
2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as an electroplating process.
3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Raghunath Minisandram on 9 January 2006 a provisional election was made with traverse to prosecute the be made by applicant in replying to this Office action. Claims 11-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Means-Plus-Function Language

5. Instant claims 16-19 contain the flowing terms written in means-plus-function format, and have been interpreted as follows:

“means for deflecting a thin wall of an expandable diaphragm” (claim 16) is in proper means-plus-function format and is defined as the pressurized air chamber and pressurized air port in paragraphs 0009-0010 on pages 6-7.

“means for releasing the pressurized air into the pressurized chamber” (claim 17) is in proper means-plus-function format and is defined as the pressurized air port in paragraph 0010 on page 7.

“means for placing the workpiece within a locating area” (claim 18) is NOT in proper means-plus-function format since the instant specification does not provide structural limitation of for the claimed workpiece means. The examiner interprets the claimed means for placing the workpiece within a locating area to be any structure that is capable of loading/unloading the workpiece.

“means for clamping the workpiece against the workpiece surface” (claim 19) is in proper means-plus-function format and is defined as a clamping ring in paragraph 0012 on page 8.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 17 recites the limitation "the pressurized air" in line 1 and the limitation "the pressurized air chamber" in line 2. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-10 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeod et al. US 6,267,869 B1(MacLeod) in view of FR 2,436,643 A1(FR'643).

MacLeod teaches an electrochemical machining device for forming patterns/grooves on the internal surface of a cylindrical workpiece(abstract, Fig. 2). MacLeod teaches that a bearing with a shaft with groove patterns is inserted into the workpiece. During electrochemical machining, grooves are formed on the internal surfaces of the cylindrical workpiece(col. 3 line 28 – col. 5 line 21).

However, MacLeod does not explicitly teach the claimed pressurized air chamber and the claimed expandable diaphragm.

FR'643 teaches a locking device for cylindrical bodies(title). The locking device comprises a pressurized fluid chamber(page 2 last paragraph) and an expandable diaphragm configured to position the workpiece radially in response to the pressurized fluid being released into the pressurized fluid chamber(Fig. 1 numeral 5).

Regarding claim 1, one of ordinary skill in the art would have found it obvious to have incorporated the locking device of FR'643 into the electrochemical machining device of MacLeod in order to securely position the cylindrical workpiece as taught by FR'643. Therefore, the bearing with a shaft as taught by MacLeod^{*in view of FR'643*} reads on the claimed electrode assembly.

In addition, even though MacLeod in view of FR'643 do not explicitly teach that the pressurized fluid is air, one of ordinary skill in the art would have found it obvious that the pressurized fluid encompass both liquid and gas such as air.

Regarding claim 16, the pressurized fluid chamber with a piston setup as taught by FR'643(page 3 first paragraph) meets the structure limitation of the claimed means for deflecting a thin wall of an expandable diaphragm.

Regarding claims 2 and 18, the workpiece lock device of MacLeod in view of FR'643 teach a workpiece piece surface for receiving the workpiece(i.e. the top surface of the piston P as shown in Fig. 2 of FR'643). In addition, since the claimed means for placing the workpiece within a locating area is not structurally described, one of ordinary skill in the art would have found it obvious to use any means, such as a human hand or a transfer robot, to load and unload the workpiece for electrochemical machining.

Regarding claims 3 and 19, even though MacLeod in view of FR'643 do not explicitly teach the claimed clamping ring, one of ordinary skill in the art would have found it obvious to have incorporated the claimed clamping ring in order to restrain the workpiece from any vertical movements.

Regarding claims 4 and 20, since the apparatus of MacLeod in view of FR'643 is an electrochemical machining device, the electrical coupling of the workpiece with an anode contact is inherently present in order for the device to be operational.

Regarding claims 5 and 17, FR'643 further teaches allowing pressurized fluid to enter the expandable diaphragm to inflate the expandable diaphragm (page 3 second and third full paragraphs), which inherently teach the presence of pressurized air port as claimed.

Regarding claim 6, the thin wall of the expandable diaphragm as taught by MacLeod in view of FR'643 reads on the claimed thin wall configured to deflect in response to the pressurized air, which in turn causes the workpiece to position radially relative to the electrode assembly.

Regarding claims 7 and 10, the claimed length of deflection and the claimed positioning accuracy are considered process limitations in apparatus claims. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Since the apparatus of MacLeod in view of FR'643 teaches all the structural limitations of the

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instant invention, the claimed length of deflection and the claimed positioning accuracy do not lend patentability to the instant apparatus claims absent of factual evidence indicating that the claimed length of deflection and positioning accuracy structurally affects the instantly claimed apparatus.

Regarding claim 8, even though MacLeod in view of FR'643 do not explicitly teach the thickness of the expandable diaphragm wall, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643. It is well settled that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). See MPEP 2144.04. In this case, the only difference between the apparatus of MacLeod in view of FR'643 and the apparatus of the instant invention is the dimension of the expandable diaphragm wall, and the expandable diaphragms of MacLeod in view of FR'643 and the instant invention functions in the same manner. Therefore, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643.

Regarding claim 9, even though MacLeod in view of FR'643 do not explicitly teach that the thickness of the thin wall does not vary by more than approximately 5-10 microns in any one place, one of ordinary skill in the art would have found it obvious to have incorporated an expandable diaphragm with uniform thickness as claimed in the

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electrochemical machining apparatus of MacLeod in view of FR'643 in order to assert consistent force to the accurately position the workpiece. In addition, MacLeod in view of FR'643 does not teach that the wall thickness of the expandable diaphragm is not uniform. Therefore, the examiner assumes that the wall thickness of the expandable diaphragm in the apparatus of MacLeod in view of FR'643 is uniform and does not vary by more than approximately 5-10 microns in any one place as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ROY KING 
SUPERVISORY PATENT EXAMINER
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